

**TRANSLATION****PATENT COOPERATION TREATY****PCT****INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>2003P08284WO</b>	<b>FOR FURTHER ACTION</b>	See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/013661</b>	International filing date ( <i>day/month/year</i> ) <b>01.12.2004</b>	Priority date ( <i>day/month/year</i> ) <b>11.12.2003</b>
International Patent Classification (IPC) or national classification and IPC <b>C22C38/18, C23C4/08</b>		
Applicant <b>SIEMENS AKTIENGESELLSCHAFT</b>		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2.	This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.	
3.	This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> ( <i>sent to the applicant and to the International Bureau</i> ) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> ( <i>sent to the International Bureau only</i> ) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4.	This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application	

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/013661

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-14 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-18 \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/4-4/4 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/013661

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	<u>1-18</u>	YES
	Claims	<u></u>	NO
Inventive step (IS)	Claims	<u></u>	YES
	Claims	<u>1-18</u>	NO
Industrial applicability (IA)	Claims	<u>1-18</u>	YES
	Claims	<u></u>	NO
2. Citations and explanations (Rule 70.7)			
<b>1. Prior art</b>			
D1: JP 49 040239 A (TOKYO SHIBAURA ELECTRIC) 15 April 1974 (1974-04-15)			
D2: Introduction to High Temperature Oxidation and Corrosion - A.S. Khanna, ASM International, 2002, USA, p. 122-125 (a copy is attached)			
D3: CH 646 461 A5 (BULTEN-KANTHAL AB) 30 November 1984 (1984-11-30)			
<b>2. Clarity (PCT Article 6)</b>			
The subject matter of claim 2 does not meet the requirements of PCT Article 6, because essential features are lacking, namely "0-0.07 percent by weight yttrium and/or at least one metal from the group comprising scandium and the rare earth metals" (see page 4, lines 15-20 of the description).			

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**3. Novelty (PCT Article 33(2))**

None of the prior art documents discloses a metal protective layer according to D1 or a layer system according to D3. Therefore, the subject matter of independent claims 1 and 3 and of dependent claims 2 and 4-18 meet the requirements of PCT Article 33(2) with respect to novelty.

**4. Inventive step (PCT Article 33(3))****4.1 Claims 1-2 - a metal protective layer**

The aim of the invention is to provide a protective layer that has good high temperature corrosion and oxidation resistance and improved ductility properties (see page 3, lines 25-31 and page 6, lines 7-12 of the description). The applicant indicates that an increase in the Al and Cr content in order to improve a protective layer's resistance to oxidation and corrosion is already known, but leads to a decrease in ductility (see page 3, lines 12-22 of the description). D2 discloses the effect of adding Al and Cr to Fe alloys (see page 122 and figure 7.8 on page 123), and the above-mentioned effect can be seen clearly. Therefore it is obvious to the Examining Authority that, in order to produce a layer intended to have good high temperature corrosion and oxidation resistance as well as improved ductility, it is merely a question of selecting the Al and Cr contents so as to balance the high temperature resistance and the desired

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	<p>ductility. The effect of adding the other elements, Si and Y, is also known from D2.</p> <p>For example, D1, which is regarded as the closest prior art, refers to protective layers that have good corrosion resistance and are provided for high temperature applications. The layer according to claim 1 differs from D1 in that it contains less Al.</p> <p>The addition of Al serves to increase the layer's oxidation resistance (see D2) and leads to a reduction in ductility (see description, lines 3 and 20-22). Since the aim of the invention is to provide a layer that has both good high temperature resistance and improved ductility, in view of the teaching of D2 it would be obvious for a person skilled in the art to reduce the Al content of the layer in D1 in order to increase the ductility. The same line of reasoning also applies to the combination of D2 and D3. Therefore, in view of D1-D3, the subject matter of claim 1 does not meet the requirements of PCT Article 33(3). The same also applies to claim 2.</p> <p><b>4.2 Claims 2-18 - a layer system</b></p> <p>The line of reasoning presented above with respect to inventive step also applies to independent claim 3.</p> <p>Dependent claims 4-18 do not appear to contain any additional features that, in combination with the</p>

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>features of any claim to which claims 2-13 refer, meet the PCT requirements for inventive step. The reasons therefor are the following:</p> <p>The subject matter of claims 4-9 and 15-18 is already known from D1 in combination with D2. The subject matter of each of claims 10-12 is merely one of several obvious possibilities from which a person skilled in the art would choose according to the circumstances in order to solve the problem of interest, without thereby being inventive. The features of claims 13 and 14 are a matter of standard practice in the field.</p> <p><b>5. Additional observations</b></p> <p>At least some of the objections raised above are of such nature that it does not appear possible to redress them by means of amendments.</p>